

DOCKET NO.: ISIS-4804



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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Muthiah Manoharan

Serial No.: 09/996,292

Group Art Unit: Not Yet Assigned

Filing Date: November 28, 2001

Examiner: Not Yet Assigned

For: NUCLEASE RESISTANT CHIMERIC OLIGONUCLEOTIDES

DATE OF DEPOSIT: February 21, 2002
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Jane E. Inglese
TYPED NAME: Jane E. Inglese, Ph.D.
REGISTRATION NO.: 48,444

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 C.F.R. §1.56(b).

- ☒ In accordance with §1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of the above identified application as set forth in §1.491, before the mailing date of a first Office Action on the merits of the above-identified application, or before the mailing date of a first office action after the filing of request for continued examination under §1.114, no additional fee is required.

- ☐ In accordance with §1.129(a), this Information Disclosure Statement is being filed in connection with ☐the first or ☐second After Final Submission, therefore:
- ☐ Certification in Accordance with §1.97(e) is attached; or
- ☐ The fee of \$180.00 as set forth in §1.17(p) is attached.
- ☐ In accordance with §1.97(c), this Information Disclosure Statement is being filed after the period set forth in §1.97(b) above but before the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311, or before an action that otherwise closes prosecution in the application, therefore:
- ☐ Certification in Accordance with §1.97(e) is attached; or
- ☐ The fee of \$180.00 as set forth in §1.17(p) is attached.
- ☐ In accordance with §1.97(d), this Information Disclosure Statement is being filed after the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311 but before, or simultaneously with, the payment of the Issue Fee, therefore included are: Certification in Accordance with §1.97(e); and the submission fee of \$180.00 as set forth in §1.17(p).
- ☒ Copies of each of the references listed on the attached Form PTO-1449 are enclosed herewith.
- ☐ Copies of references listed on the attached Form PTO-1449 are enclosed herewith EXCEPT THAT:
- ☐ In view of the voluminous nature of references [list as appropriate], and the likelihood that these references are available to the Examiner, copies are not enclosed herewith.

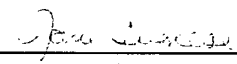
- ☐ In accordance with §1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C. §120 have been made in the instant application:
- ☐ Copies of references **[list as appropriate]** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior application Serial No. , filed .
- ☐ If any of the foregoing publications are not available to the Examiner, Applicant will endeavor to supply copies at the Examiner's request.

Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050.

This form is submitted in duplicate.

There are no listed references which are not in the English language.

Date: February 21, 2002



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Sheet 1 of 1

Form PTO-1449 Modified		Docket No. ISIS-4804	Serial No. 09/996,292
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)		Applicant Muthiah Manoharan	
U.S. Department of Commerce Patent and Trademark Office		Filing Date November 28, 2001	Group Not Yet Assigned
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
AA	Capobinaco, M.L., et al., "control of the expression of an early gene of SV40 with natural and modified oligonucleotides," <i>Nucleic Acids Symp. Series</i> , 1991 , 24, 274		
AB	Damha, M.J., et al., "Antisense L/D-oligodeoxynucleotide chimeras: nuclease stability, base-pairing properties, and activity at directing ribonuclease H ^{†‡} " <i>Biochemistry</i> , 1994 , 33, 7877-7885		
AC	Flanagan, W.M., et al., "A cytosine analog that confers enhanced potency to antisense oligonucleotides," <i>Proc. Natl. Acad. Sci. USA</i> , March 1999 , 96, 3513-3518		
AD	Kawasaki, A.M., et al., "Synthesis, hybridization, and nuclease resistance properties of 2'-O-aminooxyethyl modified oligonucleotides," <i>Nucleosides Nucleotides</i> , 1999 , 18(6 & 7), 1419-1420		
AE	Lin, K.Y., et al., "A cytosine analogue capable of clamp-like binding to a guanine in helical nucleic acids," <i>J. Am. Chem. Soc.</i> , 1998 , 120, 8531-8532		
AF	Maier, M., et al., "Enzymatic degradation of various antisense oligonucleotides: monitoring and fragment identification by MECC and ES-MS," <i>Biomed. Pept., Proteins Nucleic Acids</i> , 1995 , 1, 235-241		
AG	Manoharan, M., et al., "2'-O- and 3'-O-pyrimidine aminothether-containing oligonucleotides: synthesis and conjugation chemistry," <i>Tetrahedron Lett.</i> , 1995 , 36(21), 3647-3650		
AH	Manoharan, M., "2'-carbohydrate modifications in antisense oligonucleotide therapy: importance of conformation, configuration and conjugation," <i>Biochim. Biophys. Acta</i> , 1999 , 1489, 117-130		
AI	Prakash, T.P., et al., "2'-DMAOE RNA: Emerging oligonucleotides with promising antisense properties," <i>Nucleosides Nucleotides</i> , 1999 , 18(6&7), 1381-1382		
AJ	Shaw, J.P., et al., "Modified deoxyoligonucleotides stable to exonuclease degradation in serum," <i>Nucleic Acids Res.</i> , 1991 , 19(4), 747-750		
AK	Teplova, M., et al., "Structural origins of the exonuclease resistance of a zwitterionic RNA," <i>PNAS</i> , December 7, 1999 , 96(25), 14240-14245		
AL	Bordier, B., et al., "In vitro effect of antisense oligonucleotides on human immunodeficiency virus type 1 reverse transcription," <i>Nucleic Acids Research</i> , 1992 , 20(22), 5999-6006		
EXAMINER		DATE CONSIDERED	